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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,143

08/20/2003

Vikram Magoon

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12/14/2007

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MINNEAPOLIS, MN 55402

EXAMINER

VAN ROY, TOD THOMAS

ART UNIT

PAPER NUMBER

2828

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/645,143

**Applicant(s)**

MAGOON, VIKRAM

**Examiner**

Tod T. Van Roy

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see the Appeal Brief, filed 09/13/2007, with respect to the rejection(s) of claim(s) 1-17 under USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Applicant's submitted prior art.

The Examiner acknowledges the arguments disclosed in the Appeal Brief are persuasive to overcome the previous rejection. Namely, the Examiner admits that the secondary references applied were used to teach generalized circuit concepts and were not directed towards duty cycle control circuits; therefor they would not have been entirely obvious to combine with the primary reference. Subsequently this office action will be made non-final.

### ***Double Patenting***

As discussed in the applicant's Remarks, pg.11, the provisional obviousness type double patenting rejection is stayed pending the outcome of the co-pending application No. 10/422829.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 7-8, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's admitted prior art (AAPA).

With respect to claims 1 and 7, the AAPA teaches a laser driver circuit comprising an input stage (fig.1 #12) to receive an input signal (fig.1 at each gate of #12), a circuit to generate a pulse data output signal (fig.1 #14) comprising a duty cycle (SPEC pg.1 lines 21-22), an output stage to modulate an output current signal based on the pulse data output signal (SPEC pg.1 lines 19-21), a duty cycle control circuit (fig.1 #16,18,22) to control the duty cycle of the pulse data output signal based on an approximation of an average power of the pulse data output signal ('approximation' from #18 and #22, compared in #20, also resistor/capacitor network setup in #18 would act as an averager), and numerous amplifier stages (fig.1 #12,16,18,22). The AAPA does not teach the use of a limiting amplifier to generate the pulse data output signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to make use of a limiting amplifier to generate the pulse data output signal as the AAPA makes extensive use of amplifiers in the system, and the amplifier type is well known in the art to be used for current control techniques.

With respect to claim 2, the AAPA teaches the laser driver as outlined in the rejection to claim 1, and further teaches the input signal to comprise a bi-level signal (fig.1 bi-level input to #12).

With respect to claims 3 and 8, the AAPA teaches the laser driver as outlined in the rejection to claim 1, and further teaches the input stage to generate a differential signal on first and second terminals (fig.1 #24) coupled to the limiting amplifier (fig.1, to #14), and wherein the duty cycle circuit comprises a current steering circuit to apply an offset current to at least one of the first and second terminals (SPEC pg.1-2 lines 22-9) in response to the approximation of the average power of the pulse data output signal.

With respect to claim 18, the AAPA further teaches the average power approximation circuit is configured to maintain a voltage at an input terminal of the current steering circuit, the voltage representing the approximation of the average power of the pulse data output signal (fig.1, output of #18 to #20 and on to #16).

Claims 4-6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA and further in view of Gilliland et al. (US 6711189).

With respect to claims 4 and 9, the AAPA teaches the laser driver as outlined in the rejection to claim 1, and further teaches a resistor pair located in the duty control circuit (1 pair in #16 and 1 pair in #18) to be used to set the control voltage which effects the duty cycle of the pulse data output signal. The AAPA does not teach the use of a potentiometer. Gilliland teaches a laser power control circuit in which a potentiometer is used to control an output voltage (abs. lines 4-5). It would have been obvious to one of

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ordinary skill in the art at the time of the invention to combine the laser driver duty control circuit with the potentiometer of Gilliland in order to allow for adjustability of the resistance values and hence the controlling voltage.

With respect to claims 5-6 and 10-11, the AAPA and Gilliland teach the laser driver as outlined in the rejection to claims 4 and 9 above, and further teach the duty control circuit to comprise a differential amplifier (fig.1 FETs in #16) to generate a differential voltage on first and second terminals (fig.1 #24) in response to the pulse data output signal, and wherein the potentiometer (Gilliland's potentiometer) is coupled to the differential amplifier to determine a resistance between a voltage source (fig.1 VCC) and each of the first and second terminals.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA and further in view of Kenny (US 6654565).

With respect to claim 12, the AAPA teaches the laser driver outlined in the rejection to claim 1. The AAPA does not teach the laser driver to use a serializer. Kenny teaches a communication system utilizing a serializer (fig.9 #930). It would have been obvious at the time of the invention to combine the laser driver of the AAPA with the serializer of Kenny in order to implement the laser and driver into a high-speed system (Kenny, col.19 lines 56-60).

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA and Kenny, and further in view of Diaz et al. (US 6822987).

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With respect to claim 13, the AAPA and Kenny teach the laser driving system as outlined in the rejection to claim 12, but do not teach the use of a SONET framer. Diaz teaches a high-speed laser array which uses a SONET framer (col.10 lines 46-48). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the laser driver system of the AAPA and Kenny with the SONET framer of Diaz in order to provide for high bit rate during very high speed applications (Diaz, col.9 lines 50-57).

With respect to claims 14-17, the AAPA, Kenny, and Diaz teach the laser system as outlined in the rejections to claims 12, and 13, while it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the laser system with a switch fabric coupled to the SONET, an Ethernet MAC and a multiplexed data bus since these components are well known and widely used in communications systems.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR

